The projection lens 27 projects the object light L2 toward the second cylindrical lens 28.

The second cylindrical lens 28 converges the collimated object light L2 in transverse directions on the exposure/recording portion P1.

Further, in the object light optical system 15B, between the collimator lens 26 and the projection lens 27, there is provided the transmission type liquid crystal display 29. On this transmission type liquid crystal display 29 are displayed element hologram images sequentially based on the element hologram image data D5 supplied from the control computer 13. In addition, the control computer 13 supplies a drive signal C2 to a recording medium feeder device 34 (to be described later) of the hologram recording medium 4, corresponding to the output timing of the element hologram image data D5, so as to control its operation to feed in the hologram recording medium 4.

In this object light optical system 15B, the object light L2 in a state of a spot beam of incidence split from the incident light optical system 15A is diffused by means of the first cylindrical lens 25, then, collimated by passing through the collimator lens 26. Further, in the object light optical system 15B, the object light L2 incident on the transmission type liquid crystal display 29 via the collimator lens 26 receives image-modulation according to element hologram images displayed on this transmission type liquid crystal display 29 and is directed via the projection lens 27 to the second cylindrical lens 28. Then, in the object light optical system 15B, while the shutter mechanism 22 is open, the

object light L2 subjected to the image modulation is allowed to fall on the hologram recording medium 4 at the exposure/record portion P1 so as to be exposed and recorded corresponding to the element hologram image having been displayed.

The reference light optical system 15C is constructed with a cylindrical lens 30, a collimator lens 31 and a full-reflection mirror 32, which are disposed sequentially from its input side along an optical axis thereof.

The cylindrical lens 30, which is constructed using a convex lens in combination with a pin hole likewise the first cylindrical lens 25 in the object light optical system 15B described above, diffuses the reference light L3 having been split by reflection on the half mirror 23 in one-dimensional direction and into a predetermined width, more specifically, to have a width corresponding to a width of the display screen of the transmission type liquid crystal display 29.

The collimator lens 31 collimates the reference light L3 having been diffused by the cylindrical lens 30 into a collimated beam of light.

The full-reflection mirror 32 reflects the reference light L3 and directs it to fall on a rear surface of the hologram recording medium 4 of the exposure/record portion P1.

By way of example, although it is described that the shutter mechanism 22 is disposed in the incident light optical system 15A, it is not limited thereto. The shutter mechanism 22 may be disposed in both optical systems of the object light optical system 15B and the

reference light optical system 15C respectively in front and backward of the hologram recording medium 4 of the exposure/record member P1. Further, it may be arranged for the shutter mechanism 22 to be able to control the object light L2 and the reference light L3 directed to the hologram recording medium 4 to impinge or to be interrupted in synchronism immediately before they fall on the hologram recording medium 4.

In this optical system 15, as described above, the object light optical system 15B transmitting the object light L2 split by means of the half mirror 23 and the reference optical system 15C transmitting the reference light L3 are constructed to have substantially an identical length of light path. Therefore, this optical system 15 ensures for the optical interference between the object light L2 and the reference light L3 to be improved, thereby enabling to produce a holographic stereogram in which a clearer reproduced image can be obtained.

Still further, this optical system 15 is provided with an interference fringe detector 33 when required, which, if it is anticipated that a satisfactory holographic stereogram cannot be produced due to vibration or the like, stops the exposure and recording on the hologram recording medium 4.

The interference fringe detector 33 detects a state of interference fringes generated by interaction between the object light L2 and the reference light L3 impinging on the hologram recording medium 4 after passing through respective optical systems described above. The interference fringe detector 33, which is constructed,